REMARKS

Claims 1, 4, and 5 have been rejected under 35 U.S.C. § 102(b) as anticipated by Averbuch et al (U.S. Patent No. 6,192,029), while Claims 2, 3 and 6-12 have been rejected under 35 U.S.C. § 103(a) as unpatentable over Averbuch et al in view of Grech (U.K. patent document GB 2 364 858). However, for the reasons set forth hereinafter, Applicants respectfully submit that all claims of record in this application distinguish over the cited references, whether considered separately or in combination.

By the foregoing amendment, Applicants have revised the language of Claims 1 and 6 to place them into a format more customary according to U.S. practice, and have made additional formal revisions without, however, altering the scope of either claim.

The present invention is directed to a method for operating a base station system for a mobile communications network. In particular, the invention provides a method for controlling the transmission of data to a mobile station (such as a cell phone, for example) during the transition of the cell phone from one cell to another, so as to avoid a loss of data during the transmission.

In the system according to the invention, for example as defined in Claim 1, data from a streaming source are received and stored in a base station controller buffer of a base station in a first cell when the mobile station is

communication via the first cell. The data are then transmitted to the mobile station from the BSC buffer in the first cell at a first data rate. During such communication via the first cell, the BSC in the first cell monitors the mobile station, and upon receipt of an indication that the mobile station has ceased communication via the first cell, it prevents further streaming data from entering the BSC buffer of the first cell. Thereafter, the BSC monitors for an indication that the mobile station has established communication by a second cell, and on receipt of such an indication, instructs the streaming source to continue data transfer via the second cell. The base station controller BSC in the second cell then instructs the streaming source to increase the rate of data transfer to the mobile station buffer via the second cell until the mobile station buffer is substantially refilled. Thereafter, data transfer resumes at the first data rate.

Claim 7 is similarly limited, reciting that, upon receipt of an indication that the mobile station has ceased communication via the first cell (meaning that it has left the geographic area of the first cell), the GPRS support node SGSN is instructed to store data in an SGSN buffer. Thereafter, Claim 7 recites a step of monitoring for an indication that the mobile station has established communication via second cell, and continuing data transfer via the second cell. Finally, as in Claim 1, Claim 7 recites that the rate of data transfer from the SGSN to the mobile station buffer via the second cell is increased until the

mobile station buffer is substantially refilled, and thereafter, transmission of data is continued at the first data rate.

The purpose of this arrangement is to avoid either an overflow of data stored in the mobile station buffer, which has a limited capacity, or a depletion of such data which might interrupt operation of the application at the mobile station, due to a lack of data input.

The Averbuch et al reference, on the other hand, discloses a data communication system which includes a server router 102 and a plurality of client routers 104, each of the latter being coupled to a "subnetwork". (See Figure 1.) As described in the specification at Column 3, lines 21-40, the server router receives an input data stream 108 from a data source, such as a wide area packet network or a TCP/IP network. The data stream may comprise data for any one or more of the subnetworks served by each of the respective client routers 104. As noted at Column 3, lines 35-40, the client routers transmit or forward the data to other network entities over a synchronous channel 112, examples of which include T1, synchronous optical networks (SONET), and global system for mobile communication (GSM)...".

Based on the foregoing brief description, it is apparent that there are a number of fundamental differences between the present invention, as defined in independent Claims 1 and 7, and the Averbuch et al network. Most significantly,

in Averbuch et al, the server router 102 and the client routers 104 are both included in the fixed network. This feature of the Averbuch et al structure is apparent from the discussion at Column 3, lines 28-40, and particularly, lines 35-40, which state that, as noted previously, the client routers transmit the data to other network entities over a synchronous channel 112, such as T1 SONET or GSM. It is apparent, therefore, that the client router is not part of the mobile station, but rather communicates with it via a mobile communications network. Moreover, in Averbuch et al, the method of operation is directed to insuring that the client router buffer is neither empty nor too full. (See, for example, Column 2, lines 1-8.) Therefore, Averbuch et al states that the aim of the structure disclosed there is to keep the buffer between a lower and an upper queue limit.

While the method of the current invention is directed to refilling the MS buffer in the mobile station, following a transition from one cell to another cell, to a sufficiently large limit, in Averbuch et al, the method is concerned with insuring that the client router buffer (part of the fixed network) is neither empty nor too full, as noted previously. Accordingly, Averbuch et al does not teach or suggest a system in which the storage of data in a buffer of a first base station controller is suspended during a transition of the mobile station between cells, followed by an increase in the rate of transmission to a buffer in the mobile station as implemented until the buffer and the mobile station is substantially refilled, or thereafter, resuming the transfer of data at the first data rate.

In this regard, Applicants note that item 2 of the Office Action at the bottom of page 2 refers to Column 9, lines 3-13 as disclosing that "on receipt of such an indication [that the mobile station has set up communication via a second cell], [the BSC] instructs the streaming source to continue data transfer via the second cell". Additionally, this portion of the Office Action also indicates that the specification at Column 9, lines 34-44 discloses that "a BSC in the second cell instructs the streaming source to increase the rate of data transfer to the mobile station buffer via the cell unit until the mobile station buffer is substantially refilled". Applicants respectfully submit, however, that this portion of the specification contains no mention of the mobile station's having established communication via a second cell. Moreover, there is no disclosure which indicates that the data transfer rate is increased in response to the detection of the establishment of communications via a second cell. While the invention, as defined in independent Claims 1 and 7 uses the detection of establishment of such communication via a second cell to rapidly refill the MS buffer by increasing the data transfer rate, Averbuch et al is concerned with maintaining the buffer length between two thresholds at all times.

With regard to Claim 4, the Office Action indicates at page 3 that Averbuch et al teaches the increase data rate set between an original guaranteed bit rate and a peak rate, referring to Column 3, lines 47-56. However, Applicants note that Averbuch et al states that the incoming rate of data transfer via the

link can be much higher than the rate of output, whereas Claim 4 provides upper and lower limits on the data rata for the individual mobile station, not the communication link.

With regard to the rejection of Claim 7, Applicants note that this claim is directed to the storage of data in a buffer in the mobile station, which is not shown in either of Averbuch et al or Grech. Moreover, in the present invention, there is an explicit handover trigger to increase the rate of fill to the mobile station buffer until it reaches a threshold, which is not disclosed in the cited references.

The Grech reference is cited at page 4 of the Office Action as teaching the streaming of data stored in a store in a service GPRS support node (SGSN) before being transmitted to a base station controller buffer. It is apparent that those features of the invention as recited in Claim 7, as described above, are not supplied by the Grech reference.
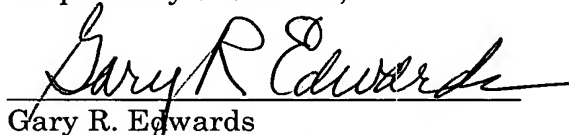
Finally, Claim 3 recites that the increased data rate is calculated based on the handover interruption period. Such a calculation is neither taught nor suggested in either of the cited references.

In light of the foregoing remarks, this application should be in condition for allowance, and early passage of this case to issue is respectfully requested. If

there are any questions regarding this amendment or the application in general, a telephone call to the undersigned would be appreciated since this should expedite the prosecution of the application for all concerned.

If necessary to effect a timely response, this paper should be considered as a petition for an Extension of Time sufficient to effect a timely response, and please charge any deficiency in fees or credit any overpayments to Deposit Account No. 05-1323 (Docket #037256.53206US).

Respectfully submitted,

Gary R. Edwards
Registration No. 31,824

CROWELL & MORING LLP
Intellectual Property Group
P.O. Box 14300
Washington, DC 20044-4300
Telephone No.: (202) 624-2500
Facsimile No.: (202) 628-8844
GRE:kms
4020744_1